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(54) Title: ABSORBTION MATERIAL FOR FILTER ARRANGEMENT		
(57) Abstract Filters are used for collecting up the liquid particles when diverting exhaust gases containing liquid particles. The object of the invention is to use foam plastic in which the closed cells have been perforated, as absorbtion material.		

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Absorbtion material for filter arrangement

The present invention relates to an absorbtion material for a filter arrangement. Suction means are generally used in premises where troublesome gases are formed, these means including a filter to collect constituents which shall not be released to the environment outside said premises. Filters to collect troublesome constituents in the gases are also arranged in front of the outlet openings of material emitting troublesome gases. Carbon particles has hitherto been used to provide such absorbtion material. It has been found in practice that such filters with carbon particles are not efficient enough to eliminate liquid particles from flowing gaseous media.

The object of the present invention is to efficiently take care of liquid particles in flowing gaseous media. This is achieved by using one or more bodies including closed spaces which have been perforated. The bodies may suitably consist of foam plastic in which the closed spaces have been perforated.

A filter may be formed by one or more parallel-epipedic blocks or it may consist of a casing containing a number of smaller bodies of different shape which have been compressed.

A filter can also be produced from a body shaped as a mat or strip which is rolled to suitable shape and placed in a casing.

The absorbtion material in the filter is suitably elastic. In such case the material in the filter can be subjected to compressed so that the constituent absorbed from the gaseous medium flowing through the filter can be recovered.

The absorbtion material in the filter suitably consists of polythene, polypropylene or a copolymer or polythene and metacrylic acid. Further characteristic features of the present invention are revealed in the following claims.



The absorbtion material according to the invention invention is preferably manufactured from a polythene granulate which is mixed with small quantities of powdered additives with the object of forming bubbles. The mixture is fed into the first stage of a two-stage extruder of screw type and is heated to ca. 200°C. The melt obtained is fed into the second extruder stage where the temperature is lowered to 100 - 150°C and is extruded through an annular nozzle. A porous tube is obtained and the tube is cooled internally and externally with air and then cut in longitudinal direction to form a strip of foam plastic.

Parallel-epipedic bodies may of course be formed instead of strips.

If parallel-epipedic bodies are produced, they are suitably placed in the frame of a filter arrangement. If a mat is used, however, it must be rolled up, suitably shaped and inserted in a casing which is then placed in a filter arrangement.

According to the invention the mat or parallel-epipedic bodies may also be disintegrated into small particles. A casing is then filled with said small particles and placed in a filter arrangement.

A filter arrangement of the type described above functions in the following manner. Gas containing liquid drops is allowed to pass the filter arrangement, whereupon the liquid drops are caught by the absorbtion material and, if the gas contains constituents which are converted to liquid at a drop in temperature, the liquid formed in this way will also be absorbed. When the filter arrangement is saturated, the absorbtion material is removed and replaced by fresh material. The absorbtion material in the saturated filter is then subjected to compression whereupon the material absorbed can be recovered for re-use. After compressing the absorbtion material is once more usable. An absorbtion material has thus been produced which not only absorbs liquid particles, but also enables recovery of these particles so that the material is once more usable as a filter.

An endless strip can be produced from the mat of absorbtion material mentioned above. This strip is then allowed to run over two rollers,



one of which is driving. A strip arranged on rollers is placed in a filter arrangement so that a gas is allowed to flow through one part of the strip and then a second part of the strip. The strip will thus absorb liquid particles which can be recovered if an additional roller is arranged by one of the rollers, pressing against the strip. Each part of the strip will therefore be supplied with gas containing liquid particles on two different occasions and the liquid absorbed is then pressed out between the two cooperating rollers.



CLAIMS

1. Absorbtion material for a filter arrangement to be placed in the flow path of primarily gaseous media which may contain liquid particles or gas which is converted to liquid form at a drop in temperature, characterised in that said material consists of one or more bodies preferably elastic and including closed spaces which have been perforated.
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2. Absorbtion material according to claim 1, characterised in that the material can be compressed so much that said closed, perforated spaces become completely or partially flattened or crumpled.
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3. Absorbtion material according to claim 1, characterised in that it consists of foam plastic such as polythene, polypropylene and a copolymer or polythene and metacrylic acid.



INTERNATIONAL SEARCH REPORT

International Application No PCT/SE83/00283

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ³

According to International Patent Classification (IPC) or to both National Classification and IPC 3

B 01 D 39/00

II. FIELDS SEARCHED

Minimum Documentation Searched ⁴

Classification System	Classification Symbols
IPC 3	B 01 D 39/00,14,16, C 09 K 3/32
US Cl	<u>264:54</u>

Documentation Searched other than Minimum Documentation
to the Extent that such Documents are Included in the Fields Searched ⁵

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴

Category ⁶	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
X	US, A, 2 961 710 (NORMAN H STARK) 29 November 1960	1-3
A	DE, B, 2 927 287 (HELSA-WERKE HELMUT SANDLER & CO) 21 May 1981	1
A	GB, A, 1 567 645 (SCOTT PAPER COMPANY) 21 May 1980	1

* Special categories of cited documents: ¹⁵

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IV. CERTIFICATION

Date of the Actual Completion of the International Search ¹⁹	Date of Mailing of this International Search Report ²⁰
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International Searching Authority ²¹ Swedish Patent Office	Signature of Authorized Officer ²² Olov Jansson Olov Jansson